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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,749	02/18/2004	Yoshihiro Kimura	H6808.0040/P040	2045
24998 7590 12/18/2008 DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403				
EXAMINER				
JOHNSTON, PHILLIP A				
ART UNIT		PAPER NUMBER		
2881				
MAIL DATE		DELIVERY MODE		
12/18/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/779,749

**Applicant(s)**

KIMURA ET AL.

**Examiner**

PHILLIP A. JOHNSTON

**Art Unit**

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-11 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

***Detailed Action***

1. This Office Action is submitted in response to the amendment filed 10-14-2008, wherein claims 1, 10, and 14 have been amended. Claims 1-20 are pending.

***Response to Arguments***

2. As a result of amendments to the claims filed 10-14-2008, the 35 U.S.C. 112 rejection in the previous office action is hereby withdrawn.

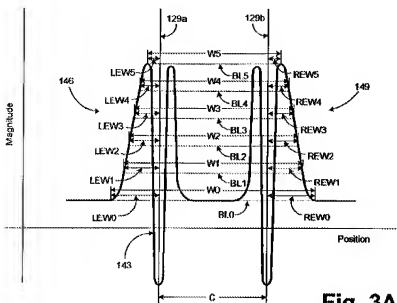
3. Applicant's arguments filed 10-14-2008 have been fully considered but they are not persuasive.

4. Applicant argues at page 9 of the remarks that; because Dudley does not teach, suggest, or otherwise render obvious the means for acquiring evaluation values from a positive peak and a negative peak of said derivative waveform, determining the positions of line and space patterns based on a comparison between the magnitudes of said evaluation values, and determining the target location for measurement of said sample, the rejection of claim 11 should be withdrawn and the claim allowed.

The examiner disagrees.

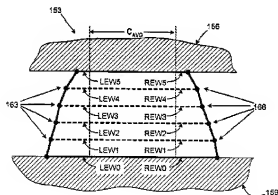
The applicant is respectfully directed to Col. 3, line 16-38, where Dudley teaches calculating the first derivative of the dimensional waveform of the profile of the scanned structure 126 (see Figure 2 in the rejection below) based upon where the first derivative (note Figure 3a below) includes distances defined between the outer edges

of the right and left positive peaks 146 and 149 respectively relative to the negative peaks defined by left and right boundary lines 129a and 129b.



**Fig. 3A**

Dudley also discloses at Col. 5, line 46-53, the use of profiling logic 336 to construct the profile 153 of structure 126 from the distances defined by the first derivative, as shown in Figure 3B below.



**Fig. 3B**

Dudley further discloses at Col. 7, line 61-65, that the profile above is generated from the coordinates of the edges of the scanned structure (note 126 in Figure 2 above).

One of ordinary skill would interpret from the above that the shape defined by the distances in Figure 3B, is generated using the coordinates of the scanned structure on the surface of wafer 109 shown in Figure 2 above, and that the foot portions at the base of line structure 126 define the position of the space on either side of the line structure of an integrated circuit element.

Therefore in light of the above it is the examiners contention that Dudley discloses all the limitations of the claimed invention.

6. The rejection of claims 1-11 under 35 USC 103(a) are maintained.

7. All claims stand finally rejected.

***Claims Rejection – 35 U.S.C. 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

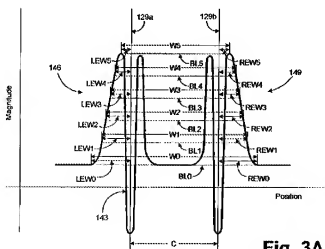
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,627,887 to Dudley.

8. Regarding claim 11, Dudley discloses at Col. 2, line 48-66, a CD scanning electron microscope including the following;

(a) a beam scanned over a structure 126 (deflector). See Col. 2, line 64-66;

- (b) a detector 119. See Col. 2, line 53-56.
- (c) a control module 123 (processor). Col. 2, line 56-62;
- (d) generating a dimensional waveform of structure 126 (a profile waveform). Col. 3, line 1-7;
- (e) forming a derivative waveform of the dimensional waveform with control system 123a. Col. 3, line 8-30; and Col. 5, line 5-20;
- (f) using profiling logic 336 to determine first distances LEW1-LEW5 (Figure 3A below) between the peak and foot of the outer edge of the left peak 146 (one side in the peak); as well as, second distances REW1- REW5 between the peak and foot of the outer edge of the right peak 149 (the other side in the peak of the derivative waveform) Col. 5, line 46-64.



**Fig. 3A**

Regarding the newly amended claim 13 limitations;

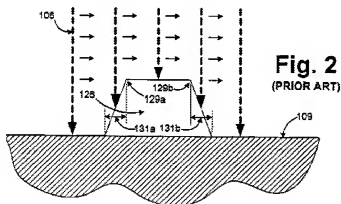
acquiring evaluation values from a positive peak and a negative peak of said derivative waveform, said positive peak and negative peak corresponding to each peak of said profile waveform;

determining the positions of line and space patterns based on a comparison between the magnitudes of said evaluation values acquired from said positive and negative peaks;

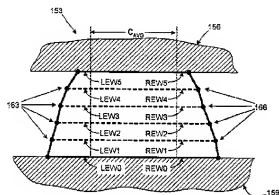
determining a target location for measurement of said sample based on the determined positions of said line and space patterns; and

measuring said sample;

Dudley teaches at Col. 3, line 16-38 constructing the profile of the structure 126 scanned in Figure 2 below based upon the first derivative of the dimensional waveform (note Figure 3a above), where the first derivative includes distances defined between the outer edges of the right and left positive peaks 146 and 149 respectively relative to the negative peaks defined by left and right boundary lines 129a and 129b.



Dudley also discloses at Col. 5, line 46-53, the use of profiling logic 336 to construct the profile 153 of structure 126 from the distances defined by the first derivative, as shown in Figure 3B below.



**Fig. 3B**

Dudley further discloses at Col. 7, line 61-65, that the profile above is generated from the coordinates of the edges of the scanned structure (note 126 in Figure 2 above).

One of ordinary skill would interpret from the above that the shape defined by the distances in Figure 3B, is generated using the coordinates of the scanned structure on the surface of wafer 109 shown in Figure 2 above, and that the foot portions at the base of line structure 126 define the position of the space on either side of the line structure of an integrated circuit element.

9. Regarding claims 1-10, Dudley discloses the apparatus used in these method claims, as described above regarding claim 11.

### ***Conclusion***

8. The Amendment filed on 10-14-2008 has been considered but is ineffective to overcome the references cited in the Office Action mailed 4-14-2008.



**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor Robert Kim can be reached at (571) 272-2293. The fax phone number for the organization where the application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).

/David A Vanore/  
Primary Examiner, Art Unit 2881

PJ  
December 12, 2008